

10th January 08:30 2889-R-009

Present: AB/PO: H.Thiesen.
AB/CO: P.Dahlen, R.Lauckner, R.Schmidt.
AT/ACR: F.Millet, R.Rabehl, A.Suraci.
AT/MEL: D.Bozzini, P.Chambouvet, R.Denz, S.Feher.
AT/VAC: A.Grimaud, W.Maan.
TS/EL: J-C.Guillaume.
TS/HDO: M.Solfaroli, M.Laureure, B.Perea, R.Saban, A.Vergara.
TS/IC: E.Barbero.

Preparation of the Cool-Down in Sector 78, 81 and 45.

Sector 78

Flushing (F.Millet):

- The flushing is progressing as well as could be expected. The DFBs, standalone magnets and half of the sector has already been flushed. The filters will be opened today at 10 am.
- All the DFB lines will be flushed individually in order to ensure that no plugs were left in the circuits.
- During the cool-down, access to the underground controlled areas (tunnel, UX85) will only be possible using cards that will be provided by the AT/ACR team in the cryo control room. These cards will be the only ones in the LHCCOOL!

Vacuum & Cryo (W.Maan-A.Suraci):

- P.Gomes tested and corrected the cabling between the VAC & the CRYO PLCs for the half sector 8L. W.Maan stressed that he still did not fully understand 3 interlock problems. Besides, he needs to clarify communication and calibration issues. He is confident that everything will be sorted out by Friday.
- Today P.Gomes should finish testing the half sector 7R.

Non-conformities in cabling (J.C.Guillaume):

- A.Suraci pointed out that 2 cryo-instrumentation cables controlling the temperature of the HTS need to be pulled at LSS8L and 1 at LSS7R.
- P.Chambouvet informed that there are still non-conformities in the DFBXG current lead temperature sensor cables. Connector 1821322 is OK at the rack side, but following cabling convention DHT09 and not DHT06 as requested at DIC. Cable 1821323 should be checked as well.

- D.Bozzini pointed out a continuity error with cable 1813004A and a wrong housing of 1702440 which should be replaced.
- J-C.Guillaume pointed out that the 13 kA cables *cosse*s prevent the positioning of the insulation foils using the standard clamps. The insulation of these circuits is however mandatory before the cool-down. After the meeting it was proposed to gring the excess 2 mm off the lugs in the presence of J-C.Guillaume and P.Chambouvet.

QPS (R.Denz):

- R.Saban informed that D.Tommasini will repair the 2 QPS cables either today or tomorrow.

ELQA (D.Bozzini):

- EIQA-DOC on 60 A has been performed from cell C12L8 to C28L8. There was a continuity error in the instrumentation cable connecting the Instrumentation box of the SSS in 22L8 to the rack RYLA.A22L8. The cable ID is 1813004A, to be corrected by J-C.Guillaume.
- ELQA on 120 A is carried out by a group working extended hours. The tests have been carried out early this morning in LSS8L and tonight will be performed at LSS7R.
- The coordination with the flushing is being done smoothly between V.Chareyre and F.Millet.

Power converters (H.Thiesen):

- Hugues informed that all the Power Converters of the sector will be connected to grid today but individually grounded.

AOB:

- **Holes in IFS Boxes:** It should be verified all along the arc if the holes machined in the IFS boxes in order to facilitate natural convection are opened and that no silica gel has remained inside the boxes. R.Saban should discuss this with D.Tommasini/R.Lopez.
- **Preparation of the control software tests:** R.Lauckner and D.Bozzini will discuss the grounding status so that the tests for the preparation of PIC 1 can be performed during the first two weeks of the cool-down.

Sector 81

Warm Magnets (A.Vergara):

- Due to problems in the water filters, the ELQA tests will only start tomorrow morning. The compensators will be tested on Friday morning.

Current Leads (P.Chambouvet):

- A visual inspection and HV tests of the current lead temperature sensors in LSS8R was performed yesterday. Cable 1821201 (rack side) insulation of wire 19 is damaged and should be corrected by J-

C.Guillaume before the racks are transported underground next week.

- The insulation vacuum could not start yet, since the group is lacking manpower. This is being sorted-out within AT/MEL.
- Today visual inspection and HV tests will be carried out in LSS1L.
- There is a problem with the cable length to be discussed between Jean-Claude and Lyonel.

AOB-Q9 needs to be replaced:

- Q9 needs to be replaced. The impact of this activity in the delivery of the interconnections is being studied.

Sector 45

QPS sector 45:

- QPS tests will start tomorrow in sector 45 with a brand new team.

Open Issues

AC non-conformity

- 13.11.06 Non-conformity of the crates of cryo instrumentation (inrush current) (A.Suraci: ready next year)
- 13.11.06 Non-conformity of the AC cabling of the crates under the magnets. This concerns ACR, MEL & VAC.

DC cabling

- 10.01.07 Connection of the NC Magnets in P8 (J-C.Guillaume)
- 10.01.07 Bad positioning of the 13 kA power cable *crosses* to be corrected (J-C.Guillaume)
- 30.11.06 Non conformity temperature sensor cables need repair LSS7R (D.Bozzini, A.Suraci)
- 22.11.06 Pre-connection of 120A cables in LSS7 (TS/EL) - PC Non conformities (H.Thiesen)

Instrumentation Cabling

- 10.01.07 Continuity error with cable 1813004A and a wrong housing of 1702440 which should be replaced (D.Bozzini)
- 10.01.07 Cryo-instrumentation cables: 2 LSS8L + 1 LSS7R to be pulled (A.Suraci-J-C.Guillaume)
- 08.01.07 QPS - 2 cables need repair (R.Denz-D.Tommasini)
- 15.12.06 DFBXG non-conformity on the current lead heater cables 1821322 and 1821323 (P.Chambouvet-J-C.Guillaume)

Cryogenics

22.11.06 Instrumentation and remote control not fully stable (P.Gayet - F.Millet)

DFB Commissioning

29.11.06 DFBX Pumping of Current Leads insulation vacuum (S.Feher)

Safety

General remark: written communication in advance to announce operations!!!

23.11.06 Water leak on the tunnel concrete wall to be fixed (C33L8).

Preparation of powering test

30.11.06 EI_QA performed on C16L8. ICC test showed reversed sequence of V-taps on circuit RCBV16.L8B1 (D.Bozzini)

AOB

08.01.07 Re-installation of 3 BLMS interfering with pumping groups (B.Dehning)

13.11.06 BPM connection in Q2 (R.Jones) - waiting for Inner Triplet to be repaired

Closed Issues

| | |
|---|----------|
| Cryo-instrumentation cables at DFBX inversion sorted out (A.Suraci) | 10.01.07 |
| Calibration of the Arc Detectors on the 13 kA EE System (K.Dahlerup-Petersen) | 19.12.06 |
| Short-to-ground in QBBI.A21R7 (Lyra side) (D.Bozzini, F.Seyvet) | 19.12.06 |
| BPM connection in Q3, Q4, Q5, Q6, Q7 (R.Jones) | 15.12.06 |
| DFBAO Functional test on the leads heaters | 15.12.06 |
| DFBXG 100V test on current leads (S.Feher) | 15.12.06 |
| Repositioning of 1 DC cable on DFBAO and of 2 DV cables on DFBAN (all 13kA) (J.C.Guillaume) | 14.12.06 |
| Wooden structure for UA access restriction (that will allow transport) | 12.12.06 |
| Non conformity in DFBMH, DFBAN and DFBXG current lead heaters (P.Chambouvet-J-C.Guillaume) | 12.12.06 |
| Galvanic insulation installation on all DFBs (AT/MEL) | 08.12.06 |
| Re-positioning collars used to fix the WRL to the CLs (all DFBs) (A.Perin-D.Bozzini-F.Millet) | 08.12.06 |
| 6 kA and 13 kA cables positioning at DFBAO, DFBMA, DFBMC (Flohe) | 08.12.06 |
| Functional test on the leads heaters: DFBMA, DFBMC | 08.12.06 |
| EIQA-TP4B safety procedure (1900 volts tests!). | 07.12.06 |
| Cool down safety procedure & access conditions | 07.12.06 |
| Instrumentation cable HV tests in LSS8L (A.Suraci: 4 cables to be tested) | 06.12.06 |
| Non-conformity on instrumentation cables (temperature sensors on | 06.12.06 |

| | |
|--|----------|
| current leads) (A.Suraci: 3 cables are in repair-Wed.29th) | |
| Quench protection continuity tests and cables assignment LLS7R (DFBMH, DFBAN) and LSS8L (DFBMC, DFBMA and DFBX) | 06.12.06 |
| DFBAN cable positioning (J.C.Guillaume) | 06.12.06 |
| Access & Safety Cable Installation (full sector) (J.C.Guillaume) | 06.12.06 |
| EIQA-TP4-A for all DFBs sector78 | 04.12.06 |
| Water circulating in UA83 for the Powering Procedure Test: filters checked, installation of flexible cables by CV. | 04.12.06 |
| LHCb ODH System ready | 04.12.06 |
| Definition of owner of activity and pumping needs for current leads insulation vacuum (DFBX) (S.Feher, R.J.Rabehl) | 04.12.06 |
| DFB instrumentation cables to be connected (A.Suraci) | 04.12.06 |
| Functional test on the leads heaters DFBMA | 04.12.06 |
| Functional test on the leads heaters DFBMC | 04.12.06 |
| Non-conformity of the DC cabling of the orbit corrector power converters | 04.12.06 |
| Pretest of 60A converters in sector 78, location C16L8. | 30.11.06 |
| EIQA-TP4-A on DFBAN, DFBMH, DFBAO LC module | 29.11.06 |
| Pumping of insulation vacuum for all DFBs between 7 and 8 (except DFBX) | 29.11.06 |
| Functional test on the leads heaters DFBMH | 29.11.06 |
| Functional test on the leads heaters DFBAN | 28.11.06 |
| Pumping of current lead insulation vacuum DFBAN | 25.11.06 |
| 120A and 600A positioning on DFBAN and DFBMH (INEO) | 25.11.06 |
| Missing labels on DFBAO instrumentation cables | 24.11.06 |
| Adjustment of cable length on DFBAO | 24.11.06 |
| Prototype of galvanic insulation to be tested at Point 6 | 23.11.06 |
| Definition of Safety procedure for Powering Procedure Test (aka Dry Runs) | 23.11.06 |
| Leaks on DFBAO gas recovery line in repair/installation of helicoflex | 22.11.06 |
| 21 leak detectors to be placed all along the arc 78 | 22.11.06 |
| Connections (made by TS/MME) of 120 A cables to be verified (TS/EL) | 22.11.06 |
| 600 A cable positioning on DFBAO | 22.11.06 |
| Pumping of current lead insulation vacuum DFBMH | 21.11.06 |
| Pressurized air supply to valve on WRL | 21.11.06 |
| Support on DFBAO WRL | 21.11.06 |
| Bellows in Q6-Q7 LSS8L which had been damaged, is now repaired | 20.11.06 |

| | |
|--|----------|
| Valve on the WRL is operational | 20.11.06 |
| Leak in arc Q11-8L | 20.11.06 |
| Cryogenic valve manipulation on DFBX | 20.11.06 |
| Removal of some BLMs in conflict with the pumping groups | 17.11.06 |
| 120 A Cables connection in DFBAO, DFBMC, DFBMA and DFBX LSS8L | 17.11.06 |
| DS7R and DS8L leak test finished | 17.11.06 |
| Leak in R7 repaired | 17.11.06 |
| Q6-Q7 bake-out completed | 17.11.06 |
| Current lead vacuum: man power and pumping groups availability | 15.11.06 |
| Hydraulic connection of the current leads | 15.11.06 |
| DFBX AT/MEL Transformers installation | 14.11.06 |
| WRL connection DFBMH LSS7R | 14.11.06 |
| ELOA-TP3 test of the sector 78 | 14.11.06 |
| Polarity tests of the 600A and 120A cables for DFBAN and DFBMH (LSS7R) | 14.11.06 |
| QUI available | 10.11.06 |
| Pressure tests of QUI and DFBs safety valves finished | 10.11.06 |
| QRL valves available for all sector | 09.11.06 |
| QRL valve opening/cabling verification | 13.11.06 |
| Interconnections DFBAO, DFBMA and DFBMC. | 13.11.06 |
| WRL connection at DFBMC, DFBMA and DFBX | 13.11.06 |
| 120A cables positioning at DFBAO, DFBMA and DFBMC | 13.11.06 |
| Q6-Q11L8 leak test envelope | 13.11.06 |
| Interconnections of DFBAN and DFBMH | 13.11.06 |

Milestones: Test Schedule

| | |
|------------------------|-----------------------------|
| Week 45 | Interconnections |
| End week 46 [18.11.06] | Leak Test |
| End week 47 [24.11.06] | Pressure Test |
| Week 47-48 | EE sensor tests in RR77 |
| Week 48 & 49 | Purge and filling |
| Week 49 | Dry Run |
| Week 49 | Short Circuit tests of 60 A |
| Week 49 [07.12.06] | Diesel Tests |

| | |
|--------------------|-----------------------|
| Week 49 | ELQA-TP4B (Phase I) |
| Week 50 | Flushing |
| Week 50 [15.12.06] | ELQA-TP4B (Phase II) |
| Week 02 [12.01.07] | ELQA-TP4B (Phase III) |
| Week 03 | Cool Down Sector 78 |



Next RAT meeting

Thursday, January 11th 8:30 @ P8 2889-R-009

Blanca Perea